

IN THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1-4. Canceled.

5. (Currently Amended) An isolated nucleic acid sequence selected from the following:

- (a) an isolated nucleic acid sequence consisting of nucleotides 1 to 1089 of SEQ ID NO:2;
- (b) an isolated nucleic acid sequence, wherein no more than 5 nucleotides have been added to, deleted from, or substituted in the isolated nucleic acid of (a), ~~and wherein said isolated nucleic acid sequence is induced by high temperature stress and is derived from barley;~~ or
- (c) an isolated nucleic acid sequence which hybridizes to the isolated nucleic acid sequence of (a) ~~under stringent conditions,~~ at 65°C in a solution containing 6XSSC, 5X Dernhardt's solution, 0.1% SDS, and 0.1 mg/ml denatured herring sperm DNA, followed by washing at 65°C in 2XSSC, 0.1% SDS; then in 1XSSC and 0.1% SDS; and then in 0.1XSSC and 0.1% SDS; and

wherein expression of said isolated nucleic acid sequence is induced by high temperature stress, is derived from barley, and confers thermotolerance to a plant transformed therewith.

6-18. Canceled.

19. (Currently Amended) An isolated nucleic acid sequence encoding a polypeptide selected from the following:

- (a) an isolated nucleic acid sequence encoding amino acids 1 to 291 of SEQ ID NO:1;
- (b) an isolated nucleic acid sequence, wherein no more than 5 amino acids have been added to, deleted from, or substituted in the polypeptide encoded by the isolated nucleic acid of (a); ~~and wherein said isolated nucleic acid sequence is induced by high temperature stress and is derived from barley;~~ or
- (c) an isolated nucleic acid sequence which hybridizes to the isolated nucleic acid sequence of (a) ~~under stringent conditions;~~ at 65°C in a solution containing 6XSSC, 5X Dernhardt's solution, 0.1% SDS, and 0.1 mg/ml denatured herring sperm DNA, followed by washing at 65°C in 2XSSC, 0.1% SDS; then in 1XSSC and 0.1% SDS; and then in 0.1XSSC and 0.1% SDS; and

wherein expression of said isolated nucleic acid sequence is induced by high temperature stress, ~~and~~ is derived from barley, and confers thermotolerance to a plant transformed therewith.

20. (Currently Amended) An isolated nucleic acid sequence encoding a polypeptide, wherein said isolated nucleic acid sequence exhibits ~~90%~~ at least 95% homology with an isolated nucleic acid sequence of Claim 19.
21. (Currently Amended) An isolated nucleic acid sequence which exhibits ~~90%~~ at least 98% homology with an isolated nucleic acid sequence of Claim 5.